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Development of a Personality Test Battery to be Used in Officer Selection in the Turkish Armed Forces

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Summary

This study is an earlier step in the development of a personality test battery to be used in the selection of officers recruited from outside sources in the Turkish Armed Forces. Prior to this study, five personality dimensions were identified as being relevant for the job military officer. Items tapping into these dimensions, or more specifically tapping into the attributes loading under the identified dimensions were developed. The test battery was piloted on a group of officers ($N = 519$). Revisions in the items were made based on internal consistency estimates. Exploratory factor analyses following these revisions led to further refinements in the battery, and consequently to identification of 18 subdimensions under the five factors that were considerably consistent. Furthermore, a preliminary test of the five-dimension model of personality was conducted using a confirmatory factor analysis. Limitations of the research as well as the steps to be followed are described.

Introduction

Hough and Schneider (1996) define the current zeitgeist of industrial and organizational psychological research as a "trait-friendly" environment. Increasing attention is being focused on individual differences variables other than cognitive ability in understanding organizational performance and behavior. Murphy (1996) identifies three noncognitive individual differences domains that could be effective in organizational performance: personality, affective disposition (mood, affect, and temperament), and orientation. This author argues that the boundaries between the domains are often obscure, and personality seems to be the overarching construct among the three.

Empirical evidence has accumulated concerning the criterion-related validity of specific personality variables in predicting a number of performance criteria (e.g., Barrick & Mount, 1991; Borman, Hanson, & Hedge, 1997; Hogan, Hogan, & Roberts, 1996; Hough, Eaton, Dunnette, Kamp, & McCloy, 1990; Ones, Viswesvaran, & Schmidt, 1993). The Five-Factor Model of Personality deserves a significant credit in the emergence of interest in personality variables as predictors of job performance. Literature suggests significant relationships between the Big Five personality dimensions and job performance. In their meta-analyis of the literature on the personality-job performance relationships, Barrick and Mount (1991) found that Extraversion was a valid predictor of job performance for managerial and sales jobs and that Conscientiousness was a valid predictor of job performance for all occupations. Cross-cultural evidence concerning the validity of the Big Five personality dimensions is also accumulating. For example, in a meta-analysis of research on the Five-Factor personality dimensions and job performance in the European Community, Salgado (1997) reported that Conscientiousness and Emotional Stability were valid predictors of job performance across occupational groups.

In a more recent meta analysis, Mount, Barrick, and Stewart (1998), investigated the relationship between the Big Five dimensions and performance in jobs involving interpersonal interactions either with customers or with other employees. The results suggested that Conscientiousness, Agreeableness, and Emotional Stability were positively related to performance. Furthermore,

Agreeableness and Emotional Stability were more strongly related to performance in jobs that involved team work than in those requiring dyadic interactions. Based on these results, in another recent article Mount and Barrick (1998) argued that the Big Five personality dimensions other than conscientiousness were meaningfully related to criteria, but their predictive power was more situational specific than that of Conscientiousness.

Despite the mounting evidence concerning the potential of personality variables in predicting job performance, personality variables have in general been overlooked in personnel selection practices. One possible reason for this seems to be the commonly used job analytic procedures that do not encourage the consideration of personality variables (Sumer, Sumer, & Demirutku, 1999). Most job analysis techniques identify the criteria for effective "task performance." However, performance domain is expanding and task performance by itself seems to be deficient in representing the domain of job performance (Arvey & Murphy, 1998; Borman, Hanson, & Hedge, 1997). A distinction has been made between task and contextual performance (Borman & Motowidlo, 1993). Task performance can be defined as the proficiency with which activities that are prescribed and formally recognized for a job are performed. Contextual performance, on the other hand, refers to interpersonal and voluntary behaviors that contribute to the enhancement of social and motivational context in which the work gets done. Contextual performance comprises discretionary behaviors such as organizational citizenship, volunteer and cooperative behaviors, and helpful acts. Studies suggest that attributes that lead incumbents to do well in task performance are different from those that lead incumbents to do well in contextual aspects of performance (e.g., McCloy, Campbell, & Cudeck, 1994; Motowidlo & Van Scotter, 1994; Van Scotter & Motowidlo, 1996). For example, Motowidlo and Van Scotter's findings indicated that both task performance and contextual performance contributed independently to overall job performance, and that personality variables were more likely to predict contextual performance than task performance. Consistently, Conscientiousness, which has been shown to be meaningfully related to different job performance criteria for a range of jobs (Mount & Barrick, 1998), seems to be more related to motivational/contextual aspects of performance than task/ability aspects of performance (Mount & Barrick, 1995). Borman et al. (1997) argue that in

majority of the studies examining the relationship between job performance and personality variables overall, job performance ratings have been used as indices of performance which weight both technical/task and contextual performance. Thus, validities of personality measures might be even higher when contextual elements of performance can be measured separately.

Recently, the bandwidth of personality measures used in personnel selection has been a source of disagreement among researchers in the field of industrial and organizational psychology (e.g., Asthon, 1998; Borman et al., 1997; Hogan & Roberts, 1996; Ones & Viswesvaran, 1996). Ones and Viswesvaran advocate the use of broader and richer personality traits, such as integrity, rather than narrower and fine-grained personality traits in personnel selection. They present evidence supporting the power of broader personality variables in predicting job performance. However, there exists empirical evidence suggesting that broader personality constructs are not necessarily better. Hogan and Roberts discuss examples of narrower personality traits predicting specific job performance better than broad traits. Similarly, Asthon reports that two narrow measures of personality, responsibility and risk taking, have higher validities than the Big Five dimensions. Borman and colleagues present studies further supporting the predictive power of narrow band traits even when global measures of performance are used.

We believe that along with personality variables that have been shown to possess generalizable validities, military jobs are likely to call for personality attributes that are job specific and not necessarily demanded by nonmilitary jobs. Most military jobs are carried out in situations that are physically and psychologically stressful and demanding. Properties such as order, discipline, secrecy, and respect for the chain of command, and leadership are much more valued in military jobs than they are in most civilian jobs. Borman and Motowidlo (1993) developed a model of "soldier effectiveness." According to this model, soldier effectiveness involves three dimensions: *Determination, Teamwork,* and *Allegiance.* Determination includes behavioral indicators such as perseverance, reaction to adversity (stress tolerance), conscientiousness, initiative, and discipline. Teamwork embraces cooperation, camaraderie, concern for unit goals, boosting unit morale, and leadership. Finally, Allegiance includes

indicators like following orders, following regulations, respect for authority, military bearing, and adjustment to the army. Soldier effectiveness refers to more than just performing assigned job duties effectively, it refers to going beyond the prescribed duties. Elements contributing to soldier effectiveness are common to nearly all soldiering jobs in the army

The research presented in this paper represents initial steps involved in the development of a personality test battery to be used in the selection officers into the Turkish Armed Forces (TAF). The TAF recruits officers from two main sources: military schools and outside sources. Officers recruited from outside sources are in fact professionals with at least a B.S. or B.A. degree. In the selection of these officers, personality tests are in general used to supplement data obtained from other selection devices. The personality tests in use in the TAF are adopted versions of the tests that are Western in origin, and there is a growing need for both culture and job specific personality tests to be used in personnel selection.

Developing a personality test battery that is both culture and job specific requires a thorough examination of the jobs in question. The jobs need to be analyzed so that criteria for contextual aspect of performance, that is personality attributes required in the job, can be identified. This is what we have done before this study. In two consecutive studies, also presented at this workshop (Sumer, Sumer, & Demirutku, 1999), personality variables to be considered in the selection of officers were identified. In the first of these studies personality-oriented job analytic interviews were conducted with a total of 78 currently employed or former officers, 70 currently employed officers (62 from outside sources and eight from military schools) and eight former officers leaving the military during their one-year probationary period. Content analysis of these interviews along with a detailed examination of available written documents, such as performance appraisal forms, led to the identification of noncognitive individual differences variables (mostly personality attributes) as being relevant for the job of officer in the TAF. In the second study, 447 officers of both type rated the relevance and importance of each of the identified attribute for the job of a military officer on a 9-point Likert type scales. Resulting weighted relevance scores (relevance rating X importance rating) were subjected to principle component analysis with the purpose of identifying major

personality constructs relevant for the job in question. Data suggested existence of five major components: *Conscientiousness/Self-Discipline*, *Military Factor (M-Factor)*, *Self-Confidence*, *Agreeableness-Extraversion*, and *Leadership* (See Table 1).

Conscientiousness consisted of 19 items and explained 37% of variance. It included attributes like, job-specific knowledge, work discipline, time management, planning, and perseverance. Thirteen items loaded on the *M*-Factor, and these items were mostly specific to the military context, such as respect to military hierarchy, military discipline, orderliness, and strength of character. *M*-Factor was very stable; almost the same structure emerged regardless of the rotation and the extraction method employed in the analyses. *M*-Factor explained the 4.51 % of variance. Self-confidence contained five attributes that tapped mostly self-assurance, like courage, risk-taking, and discretion. This factor explained 2.88% of variance. The forth factor, Agreeableness-Extraversion, included 11 items, such as interpersonal relations, sociability, empathy, agreeableness, and assertiveness, that appeared to represent a combination of two of the Big-Five dimensions: Agreeableness and Extraversion. It explained 2.86% of the variance. The final factor, Leadership, included nine attributes that were again context or job specific, such as achievement motivation, persuasiveness, and foresightedness. This factor explained only 1.95% of the variance.

In the present study, an initial test battery assessing these five personality dimensions and their subdomains, identified in earlier steps, was developed and tested. This study is believed to be a major step in the development of a valid personality test battery to be used in the selection of officers in the TAF.

Method

Construction of an Initial Test Battery
Before item development, an extensive review of the literatures on personality and selection, military selection, personality tests and social desirability, and personality bandwidth controversy was conducted. Personality inventories commonly used in personnel selection, such as the Revised NEO Personality Inventory (Costa & McCrae, 1995), and the items in the 1412 International Personality Item Pool (IPIP, 1999) were examined. The project team started developing items that were believed to

be representative of the five personality dimensions, more specifically attributes under each dimension identified in the earlier steps. In item development, two conditions were tried to be met. First, when possible items were expressed in behavioral, as opposed to attitudinal terms. Second, where possible, items were made less prone to social desirability effects by asking potential respondents to indicate a preference between two equally desirable alternative courses of actions.

For each dimension, items developed by different members of the project team were pooled together on a computer file. The list of items for a given dimension was then reviewed by the team in a series of group sessions. In these sessions, based on discussions, some items were revised, rewritten, or eliminated. Relatively more items were developed for attributes/subdimenisons that were believed to be marker for the dimension in question and/or for attributes with a strong loading on a given dimensions. An initial list of 279 items were developed.

Reallocation of Items by an Independent Group of Judges and Revisions

Eight judges, four psychology instructors and four psychology graduate students were asked to sort the items into previously established categories. Specifically, the judges were given 1) the list containing 279 items and 2) the five personality dimensions and their definitions. The definitions of the dimensions were written such that they reflected the contents of these dimensions (i.e., attributes loading under these dimensions/factors). For each item, the judges were asked to indicate the dimension of which it was the most representative. One of the judge's sortings were eliminated because for each item she indicated at least two, and mostly three or four dimensions. The remaining judges' sortings of items were examined and items on which more than half of the judges (four out of seven) were not able to agree (concerning category the which the item belonged) were excluded from the list.

Fifty-eight items were eliminated because of disagreements among the judges. The remaining 221 items were reexamined by the project team. As a result of this reexamination, some items were revised and 21 new items were developed to represent attributes or subdimensions that were underrepresented. Resulting 242 items, representing 50 subdimensions, constituted the test battery to be piloted.

Participants
The original sample consisted of 800 officers in the TAF. Of the of 800 officers receiving the questionnaire, 573 responded, resulting in a response rate of 71.6 %. Among the returned surveys, 19 surveys were eliminated because they contained incomplete information. Furthermore, 35 cases were identified as outliers and hence were eliminated from the analyses. The remaining 519 participants (Army = 95, Navy = 149, Air Force = 177, Gendarmerie = 98) constituted the final sample of this study. In the final sample, there were 465 males, 50 females, and 4 participants with missing data on sex. Two hundred-sixty-three of the participants were officers from the military schools, whereas the remaining 256 were from outside sources. The officers in the final sample had a mean age and experience of 34.4 years and 148.9 months, respectively.

The Questionnaire and Procedure
The questionnaire containing 242 items and a set of demographic questions were administered to the participants in the sample. For each item, the respondents were asked to indicate the extent to which they agreed with the statement on a 6-point Likert type scale (1 = Absolutely disagree; 6 = Absolutely agree). Approximately half of the items in the questionnaire were reverse coded. In addition to these ratings, participants answered a series of demographic questions of interest. The questionnaires were sent to and received from the officers using the internal mail system.

Analyses and Results
Prior to analyses, the data were subjected to screening and cleaning. Out of 573 returned questionnaires, 19 eliminated from the analyses because they were unfinished. Furthermore, of the 554 usable questionnaires 35 were eliminated from the analyses because they included univariate outliers. A respondent was determined to be an outlier if he/she had a z-score above 3.20 on at least 4 items. Exclusion of such outlier cases reduced the sample size to 519 participants.

In order to judge the quality of the items, a two-step procedure was followed. In the first step, items that were presumed to represent a subdimension of one of the five personality factors were grouped together, and internal consistency reliabilities were calculated for each subdimension. After

examination of inter-item correlation matrices, item-total correlations (ITC), and squared multiple correlations (SMC) for each subdimension, the items with ITCs lower than .20 and SMCs lower than .10 were excluded from the analyses if the exclusion of the item improved the internal consistency of the subdimension considerably. In the second step, the remaining items of each major personality dimension (e.g., *M*-Factor) were subjected to factor analyses to explore whether the expected subdimensions would emerge. Thus, **five separate factor analyses** with varimax rotation were performed.

The factor analyses in general did not produce the presumed subdimensions. However, examination of the factor structures revealed that items representing two or more subdimensions merged together to form a factor. Therefore, those subdimensions with items grouped under the same factor were combined. Subdimensions including low-communality items, and items with a factor loading below .30 were eliminated for the time being. Following these refinements, 18 new/enriched subdimensions (consisting of 133 items), representing the five personality dimensions were identified. Correlation matrix of the remaining 18 subdimensions, internal consistency reliability coefficients, means, and standard deviations are presented in Table 2.

As Table 2 reveals, Conscientiousness/Self-Discipline consisted of five subdimensions: decision making (3 items), problem solving (3 items), verbal communication (3 items), teamwork (8 items), and work discipline (24 items). *M*-Factor was represented by three subdimensions: orderliness (7 items), strength of character (9 items), and military spirit (10 items). Self-Confidence was composed of three subdimensions: self-confidence (6 items), risk taking (2 items), and courage (3 items). Agreeableness-Extroversion was also made up of three subdimensions: empathy (4 items), agreeableness (3 items), and sociability (12 items). Finally, Leadership included four subdimensions: critical thinking (3 items), leadership (16 items), monitoring task progress (9 items), and perseverance (8 items). Table 3 presents a sample item for each subdimension.

In addition to the analyses described above, a preliminary (and perhaps immature) test of the obtained five-factor structure was also conducted. A confirmatory factor analysis was run using LISREL 8.3 (Jöreskog & Sörbom, 1996). The measurement model consisted of five latent constructs, that is, the five personality dimensions. The indicator variables were the 18 subdimensions identified using exploratory and conceptual refinements. Sixteen of the 18 indicators loaded significantly on the expected latent constructs. The measurement model provided a modest fit to the data (χ^2 (125, $N = 519$) = 833.37, $p < .001$, RMS = .10, GFI = .85, AGFI = .79, NNFI = .76, CFI = .80). The model suggested elimination of two indicators, agreeableness and risk taking, that had nonsignificant path coefficients.

Courage was also decided to be an inadequate indicator of the latent construct Self-Confidence. It had a significant but relatively low path from the latent variable. An examination of the correlation matrix of indicators (see Table 2) also revealed that courage had negative correlations with the indicators of the *M*-Factor that it was supposed to be positively correlated with. A detailed examination of the three items under courage suggested that these items were probably poor measures of the indicator. Therefore, courage was also dropped from the model.

Furthermore, an examination of the modification indices suggested that errors between two indicators, teamwork and sociability, be correlated. Conceptually, since sociability is facilitative of teamwork, correlated errors between these two indicators made sense. Thus, we let the errors of teamwork and sociability correlate. Finally, since the latent construct Self-Confidence was measured by only a single indicator, measurement error of the indicator was included in the model using the formula (1-α) × variance of the indicator = .13. Accordingly, the model was modified and tested again. The modified model revealed a relatively better fit to the data (χ^2 (80, $N = 519$) = 477.64, $p < .001$, RMS = .09, GFI = .89, AGFI = .84, NNFI = .83, CFI = .87). Figure 1 illustrates the modified measurement model. A single-factor model was also tested to see whether a single-factor solution could explain the data better than the five-factor solution. As expected, results suggested that the single-factor solution was a relatively poor model as indicated by a variety of goodness of fit indices (χ^2 (90, $N = 519$) = 822.19, $p < .001$, RMS = .13, GFI = .83, AGFI = .77, NNFI = .76, CFI = .79).

Discussion

The present study represents an initial step in the development of a personality test battery to be used in officer selection in the TAF. At earlier steps,

five personality dimensions critical for the job of officer had been identified. In the present study, items aiming to tap into the identified dimensions, or more specifically attributes under each dimension, were developed and tested on a roughly representative sample of officers. Original revisions on the items were made on the basis of improvements in the internal consistencies of the subdimensions. These revisions were followed by **separate factor analyses** for each of the five personality dimensions. Using an exploratory approach, individual items in each dimension were factor analyzed. Factor analyses led to combining some subdimensions, further eliminating some subdimensions, resulting in an 18-subdimenison, five-factor structure.

The purpose of exploratory factor analyses was to identify meaningful sets of items for each of the five dimensions. Revisions made in items and subdimenisons were usually conceptual and/or data driven in nature. The revision process resulted in elimination of some subdimensions. While the initial item pool consisted of 242 items, following the exploratory analyses 109 items were eliminated, leaving 133 items under 18 subdimensions.

Measurement problems can explain why factor analyses conducted for personality dimensions did not produce the expected groupings of items. In the process of identifying the major personality dimensions prior to this study, certain attributes were found to load on a given dimension (e.g., *M*-Factor). In the present study items presumably measuring these attributes were developed. For many attributes, however, items aiming to measure the same subdimension did not correlate highly with each other, making the structure of each personality dimension difficult to interpret. As a result, many subdimensions were eliminated from the analyses. Elimination of these subdimensions, does not necessarily mean that they were irrelevant. We think that majority of these subdimensions were not measured adequately. New items measuring the eliminated subdimensions are going to be developed and tested in the following steps of this project.

One can also argue that the reason the expected subdimensions did not emerge was that the expected structure was in fact invalid. This could be a possibility especially when one thinks that interpretation of an exploratory factor analysis requires a judgemental process. We admit that the results of the original factor analysis yielding the

five dimensions needed to be interpreted with some caution. On the other hand, factor analysis is considered to be an effective tool for data reduction, and the obtained five-factor structure was conceptually sound. Furthermore, results of a preliminary confirmatory factor analysis seemed to support the expected five-factor structure. Compared to a single-factor solution, a five-factor solution had a better fit to data.

A clarification is called for concerning the use of the confirmatory factor analysis in this study. A confirmatory approach would normally be more appropriate after all the revisions and refinements on the battery have been done and the test battery has been tried on a new sample. However, knowing that the dimensions were underrepresented/not measured adequately, we wanted to see the fit of the predicted model to data. The results were in general quite promising.

An important limitation of the study presented here was a lack of control of social desirability effects or other related response tendencies. Such effects are known to confound results, making them more difficult to interpret. A control for social desirability will be incorporated into the following applications of the revised battery.

Both exploratory and confirmatory procedures suggested that measurement of certain attributes needs to be improved; new items should be developed for subdimensions not represented. Currently, we are in the process of developing new items for some of the weakly measured subdimensions (e.g., risk taking, foresightedness, and courage) for subdimensions with relatively few items. Officers representing different forces, ranks, and area of speciality will be consulted with as subject matter experts in the development of new items. The second version of the battery will be tested on another group of officers and further revisions on the battery will be made accordingly. The resulting battery will then be subjected to a criterion-validity process in which the power of the battery in predicting determined performance criteria will be examined.

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Table 1
Results of Factor Analysis of Weighted Attribute Ratings

Item	F1	F2	F3	F4	F5	h^2
Job-specific knowledge	.62					.55
Problem solving	.61					.61
Work discipline	.56					.47
Fairness	.53					.48
Time management	.52					.66
Planning	.47					.50
Perseverance	.46					.59
Initiative	.46		.44			.54
Verbal communication	.45					.47
Decision making	.45				.35	.54
Managerial talent	.45					.44
Team player	.44					.56
Openness to experience	.44					.53
Stress tolerance	.43				.37	.46
Mentoring	.42					.38
Trusting others	-.39		.39	.35		.33
Thriftiness	.37					.52
Secretiveness	.36					.35
Attentiveness	.35					.50
Self-control						.56
Intrinsic motivation						.54
Rationality						.50
Respect to chain of command		.79				.59
Commitment		.78				.59
Military discipline		.77				.57
Pride in uniform		.60				.53
Superior-subordinate relations		.57				.55
Morality		.56				.45
Crisp appearance		.55				.49
Honesty		.53				.38
Pride in occupation		.50				.47
Respect for family life		.46				.44
Orderliness		.42				.56
Strength of character	.36	.39				.50
Trustworthiness		.35				.40
Knowledge of rules and regulations						.50
Adaptability						.63
Frankness			.61			.49
Courage			.53			.54
Risk-taking			.52			.40
Self-confidence			.49			.44
Discretion			.43			.35
Interpersonal relations				.66		.73
Tolerance				.65		.54

Table 1 continued

Item	F1	F2	F3	F4	F5	h^2
Sociability				.65		.62
Egalitarian				.62		.49
Empathy				.61		.56
Agreeableness				.57		.57
Negotiating				.55		.55
Assertiveness				.53		.59
Culturedness				.51		.46
Consulting				.45		.58
Coordination				.44		.64
Feedback seeking				.38		.54
Self-monitoring				.37		.51
Participation				.37		.61
Practicality				.35		.42
Written communication						.51
Quality orientation						.51
Emotional stability						.29
Leadership					.53	.42
Achievement motivation					.49	.55
Persuasiveness					.44	.42
Monitoring task progress					.43	.40
Foresightedness					.42	.23
Critical thinking					.41	.49
Tolerance to frustration					.41	.50
Determinedness			.36		.37	.55
Making personal sacrifices					.35	.40
Patience					.35	.48
Tolerance to ambiguity						.14
Creativity						.59
Mannerism/Bearing						.40
Perfectionism						.43
Eigenvalues	27.63	3.34	2.13	2.12	1.44	
Explained Variance (%)	37.33	4.51	2.88	2.86	1.95	
Internal Consistency (α)	.93	.89	.75	.93	.83	

Note. Extraction method is Principal Component with Rotation Method of Oblimin with Kaiser Normalization. F1: **Conscientiousness/Self-discipline**; F2: **Military (*M-*) Factor**; F3: **Self-Confidence**; F4: **Agreeableness-Extraversion**; F5: **Leadership**.

Table 2.
Subdimension Correlations, Reliablities, Means, and Sstandard Deviations

Dimension	Subdimension	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Agreeableness-Extroversion	1. Empathy	**.58**																	
	2. Agreeableness	.03	**.41**																
	3. Sociability	.36	.01	**.70**															
Self-Confidence	4. Courage	.16	-.08	.19	**.67**														
	5. Risk taking	-.05	-.21	.01	.03	**.35**													
	6. Self-confidence	.42	-.07	.37	.27	-.09	**.58**												
Leadership	7. Critical thinking	.30	-.09	.16	.28	.08	.33	**.55**											
	8. Leadership	.55	-.11	.45	.28	-.05	.58	.36	**.79**										
	9. Monitoring task progress	.33	-.10	.30	.21	-.09	.48	.30	.55	**.62**									
	1. Perseverance	.33	-.06	.42	.26	-.01	.56	.26	.53	.47	**.63**								
M-Factor	11. Orderliness	.14	.09	.12	-.11	-.17	.18	.04	.21	.38	.17	**.75**							
	12. Strength of character	.33	-.02	.28	-.11	.05	.25	.15	.28	.37	.34	.31	**.72**						
	13. Military spirit	.28	.17	.27	-.08	-.23	.27	.02	.32	.38	.30	.43	.40	**.72**					
Conscientiousness/ Self-Discipline	14. Decision making	.35	-.14	.40	.09	-.02	.40	.26	.38	.43	.41	.29	.49	.25	**.55**				
	15. Problem solving	.27	-.08	.28	.08	.06	.34	.28	.38	.31	.41	.16	.53	.27	.39	**.45**			
	16. Verbal communication	.42	-.05	.40	.22	-.03	.49	.40	.63	.45	.45	.21	.35	.26	.39	.38	**.52**		
	17. Teamwork	.12	.09	.37	-.12	.02	.09	-.03	.09	-.03	.18	.01	.27	.15	.17	.18	.13	**.48**	
	18. Work discipline	.40	-.06	.32	-.03	-.11	.46	.22	.52	.56	.53	.49	.55	.50	.51	.43	.47	.14	**.78**
	Mean[1]	4.79	4.26	4.09	3.84	2.51	4.36	4.28	4.24	4.26	4.03	4.82	4.72	4.36	4.68	4.21	4.67	3.75	4.35
	SD	.55	.72	.57	.93	.81	.56	.74	.48	.54	.61	.69	.65	.63	.81	.83	.67	.52	.47

Note. Internal consistency reliabilities (α) are presented in the diagonals. Ratings are done on a 6-point Likert scale; increase in the means indicating higher scores in the positive direction on a given subdimension. Correlations higher than .09 are significant at alpha level .05. Correlations higher than .12 are significant at alpha level .01.
[1] $N = 519$.

Table 3
Sample Items for Subdimensions

Dimension	Subdimension	Number of items	Sample Item
Conscientiousness/ Self-Discipline	Work discipline	24	When I am assigned a task, I immediately start working on it.
	Problem-solving	3	I prefer playing chess to playing backgammon.
	Decision-making	3	I feel comfortable when someone decides for me. **R**
	Verbal communication	3	I have quite a rich vocabulary.
	Teamwork	8	I prefer working independent to working with others. **R**
M-Factor	Military spirit	10	I believe that the rules have been made to facilitate work.
	Strength of character	9	I can break a promise to save face. **R**
	Orderliness	7	I am not bothered by a messy desk if I am able to find what I need. **R**
Self-Confidence	Self-confidence	6	I feel pride in my skills
	Risk-taking	2	I will not invest on anything if I cannot foresee the consequences. **R**
	Courage	3	I like to try new things even if they can be dangerous.
Agreeableness-Extroversion	Empathy	4	I easily understand the needs and the priorities of others.
	Agreeableness	3	I avoid conflicting with others.
	Sociability	12	I dislike being alone.
Leadership	Critical thinking	3	I never question things that are given. **R**
	Leadership	16	I can make people with opposing views accept my ideas.
	Monitoring task progress	9	I try to monitor task progress when working with a group.
	Perseverance	8	I can step back when faced with obstacles. **R**
	Total number of items	133	

Note. Reverse items are indicated by **R**.

Figure 1
Modified Measurement Model: Confirmatory Factor Analysi